NEW DESCRIPTIONS

A NEW SPECIES OF *ACHLYA* (PHYCOMYCETES) FROM RIVERINE WATERS[1]

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(*With one text-figure*)

Key words: Riverine fungi, Aquatic phycomycetes, *A. punensis* sp. nov.

Aquatic fungi were isolated from riverine waters for extensive studies. The genus *Achlya* was found dominant with 14 species. *Achlya punensis* is proposed as a new species and compared with allied species.

Introduction

During our extensive studies on the riverine aquatic fungi for the last three years, 11 genera and 35 species were isolated from the rivers Mula and Mutha, Pune, Maharashtra State, India. The species of Saprolegniaceae, Blastocladiaceae and Peronosporaceae were most frequent in their occurrence and dominance throughout the year. The genus *Achlya* dominated among all the genera with its 14 species. The taxon proposed here as a new species of *Achlya*, *A. punensis,* is close to *A. conspicua* in some characters, but differs drastically in several important characters.

Material and Methods

Preliminary survey of the rivers Mula and Mutha was carried out for selection of suitable water sampling stations. The water sampling stations were established on both the rivers for collecting the water samples regularly every fortnight. Aquatic fungi were isolated from different water samples by baiting technique (Butler, 1907).

Achlya punensis R.V. Gandhe and M. J. Desale sp.nov. (Figs 1-9)

Growth in culture moderately dense, developing in 1 to 2 cm colony on baits within a week. Hyphae stout at the base up to 71.0 µm thick, with average hyphal thickness ranging from 14.2 to 56.6 µm, tapering at the free ends, sparingly branched.

Zoosporangia abundant, terminal, cylindrical to slightly broader than hyphae, sometimes filiform, 14.2 to 42.6 µm x 142 to 511.2 µm. Zoospores spherical, 12.8 µm in diameter, liberated achlyoid type, forming clumps at the exit pore for a short time, thereafter settled at the bottom.

Gemmae distinctly swollen, mostly terminal or intercalary, often segmented, elongated, functioning as sporangia, or bearing sex organs, sometimes irregularly branched. Oogonia abundant, spread over the entire culture, from the basal hyphae to the free ends, spherical, 34.22 to 96.6 µm in diameter, mostly 49.9 to 56.0 µm in diameter, borne on short stalks, sometimes stalks slightly longer than the diameter of the oogonia. Eggs 1 to 6, mostly 2 to 4 per oogonium, 28.08 to 34.32 µm in diameter, eccentric, with a single large oil drop at maturity 15.6 to 18.7 µm in diameter, immature eggs contain many small oil droplets. Oogonial wall unpitted, but sometimes inconspicuously pitted at the contact portion of the antheridium.

Antheridia abundant, mostly monoclinous, androgynous, often with a long slender stalk, very rarely diclinous, antheridial branches usually developed from the main hyphae, antheridia on all the oogonia, at least 2 to 3 antheridia per oogonium, developing conspicuous foot-like projections, penetrating into oogonia.

Isolated from the rivers Mula and Mutha

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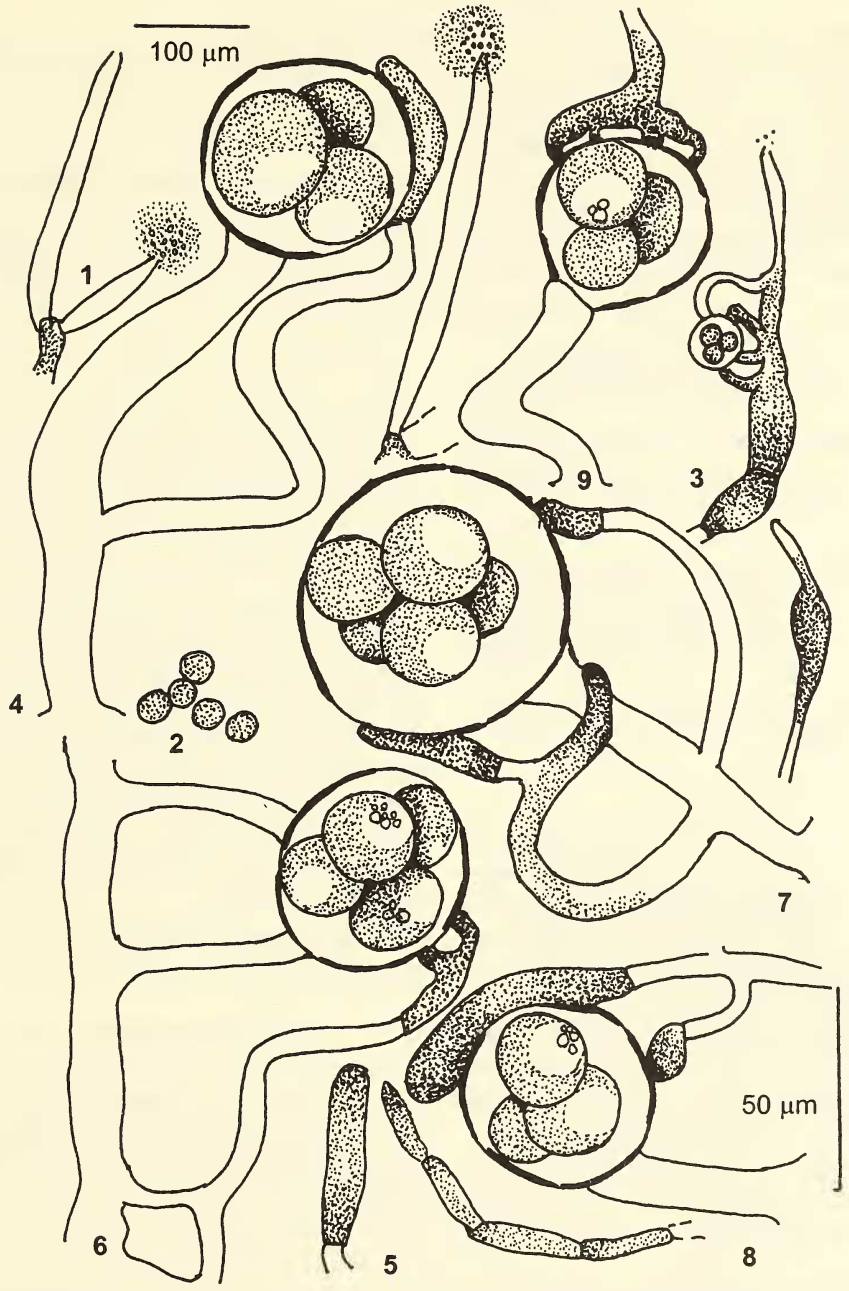

Fig. 1-9: *Achlya punensis* Gandhe and Desale sp.nov. 1. Terminal typical sporangia, 2. Zoospores, 3. Gemma developing into oogonium and monoclinous antheridia; note terminal sporangium, 4. Very long stalked oogonium with monoclinous androgynous antheridium. Note the antheridial cell projections, 5. Segmented and rod shaped gemmae, 6. Oogonium showing monoclinous antheridia, 7. Oogonium with monoclinous androgynous branched antheridia, 8. Oogonium with diclinous antheridia, 9. Oogonium with curved stalk and diclinous antheridium.

July 1995, Pune, Maharashtra, India.

Latin Diagnosis: Mycelium densum; hypis ramosis porrectis us que ad 1-2 cm in diametrum; hyphis primariis in basi 71.0 µm dim; sporangiis copiosis, longa, cylindrica, 14.2-42.6 µm x 142-511.2 µm; Zoosporiis 12.8 µm in diametrum, apice dehiscentibus et rectis; Ejectio sporarum typica generis. Gemmae copiosae, variis, plerumque in a equaliter formatis. Oogoniis copiosis, et globosis, 34.22-96.6 µm in diametrum, natis ex primariis hyphis in ramulis lateralibus.

Oosporiis numero 1-6, plerumque 2-4, 28.08-34.32 µ in diametrum, excentricis guttulis aleosis excentricis dispositis, 15.6-18.7 µ in diametrum.

Antheridis copiosis, monoclinobus out androgenibus, persistentibus, antheridio digitalibus prominentiis affixo, 2-3 pro quoque oogonio.

Hab. ad terram humosam in rivi Mula, Mutha, July 1995.

Discussion

The present species showed some resemblance to *Achlya conspicua* Coker (1923), especially in the case of monoclinous and androgynous antheridia and eccentric condition of oospores in the oogonium. However, it differs drastically from *A. conspicua* in several other important characters such as hyphal thickness, sporangial diameter, oogonial oospore number and diameter, and frequently developed antheridial branches. The basal hyphae in the present species are not stout as in *A. conspicua* but sometimes reached up to 71.0 µm and were sparingly branched. Zoosporangia in the present isolate were larger than that in *A. conspicua* and were often borne at the tip of the gemmae, which functioned as zoosporangia. The most striking feature of the present species is the development of sex organs, both antheridia and oogonia, from the gemmae or the stalk of the gemmae. This unusual pattern was not observed in *A. conspicua* or in any other allied species of *Achlya*. Oogonia in the present species were abundant, spherical and 32.32 µm x 93.6 µm in diameter, whereas oogonia were moderately abundant, spherical to oval, 45 µm to 120 µm in diameter in *A. conspicua*. The number of oospores was also very high, up to 40 in *A. conspicua,* which was much less, only 1 to 6, in the present species. The species described has monoclinous, androgynous, antheridial branches, which are longer and more frequent than in *A. conspicua* and other known allied species of *Achlya* (Coker 1923, Johnson 1956, Sparrow 1960). All the above mentioned characters certainly set apart this species from *A. conspicua* and other allied species. We, therefore, propose a new species of *Achlya*, and name it *A. punensis*.

Etymology: The species is named *punensis* as it was collected from a river in Pune.

Acknowledgements

We thank the Principal, Modern College, Pune, for encouragement and the Head, Botany Department, for providing laboratory facilities.

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